

# TRANSFERRING CONVENTIONAL MUNITIONS INDUSTRIAL BASE CAPABILITIES TO THE PUBLIC SECTOR

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The conventional munitions industrial base today is a declining industry for which 56 percent of the end items have no peacetime demand, capital assets have been allowed to deteriorate, and 70 percent of the firms have exited leaving over 300 critical single points of failure. J. Taggart's economic framework, published in *Strategy formulation in declining industries: A Biology Paradigm (1995)*, makes the case that the rational behavior of the private sector (leadership, niche, harvest, and quick disinvestment) renders the current business model ineffective. The conventional munitions industrial base requires an updated vision that emphasizes the primacy of wartime effectiveness and the conversion of capabilities from the private sector to the government. The munitions sector is one of the few unique national security-related industry segments for which more government control is not only rational, but necessary.

**Keywords:** *Munitions, Government-Owned, Contractor-Operated; Declining Industry, Privatization*

# No Peacetime Demand!



## munitions

Defense Industrial Base  
to Public Sector and Back Again

ARRIVING IN PUBLICATIONS  
**THIS SUMMER**

DEFENSE ACQUISITION REVIEW JOURNAL PRESENTS A COL JOHN G. FERRARI, U.S. ARMY ARTICLE  
IN ASSOCIATION WITH TAGGART ECONOMIC FRAMEWORK **munitions**  
STARRING DEFENSE BASE INDUSTRIES, THE PUBLIC SECTOR, AND DoD DIRECTIVE 5160.65  
BASED ON "THE PRIMACY OF WARTIME EFFECTIVENESS AND THE CONVERSION  
OF CAPABILITIES FROM THE PRIVATE SECTOR TO THE GOVERNMENT."



## BACKGROUND

Imagine yourself suspended by a single chain several hundred feet in the air. Now also imagine that you observe that the chain is rusted and corroded, as well as being rated for a person only half your size. That is the *munitions* industrial base today.<sup>1</sup> Over the past decade and a half, many studies have found that the conventional munitions industrial base, as a result of decades of downsizing and inadequate investments, is antiquated, riddled with single points of failure,<sup>2</sup> and potentially unreliable in meeting urgent wartime requirements.<sup>3</sup> The purpose of this article is not to recount these problems; instead, it will provide an alternative business model that can preserve this critical national security industry.

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This article analyzes the munitions industrial base using an economic framework designed to explain private industry behavior in declining industries.<sup>4</sup> It begins by briefly describing the current munitions business model, which maximizes reliance on the private sector. Then, using Taggart's declining industries framework, readers will see and hopefully come to the inevitable conclusion that reliance on this critical national security industry is not in the best interest of the government, taxpayer, or warfighter (Taggart, 1995).

Finally, in a reversal of decades of defense industrial policy, which was recently revalidated in the August 2008 Department of Defense Directive 5160.65, this article recommends a different business model that moves away from the private sector toward more direct government involvement. While this article confines itself to the munitions industrial base, its recommendations may also be applicable to the space and shipbuilding industries.<sup>5</sup>

## THE CONVENTIONAL MUNITIONS BUSINESS MODEL

The current business model was established to meet the requirements of World War II and remains virtually unchanged.<sup>6</sup> It consists of the following three types of facilities: Government-Owned, Government-Operated (GOGO); Government-Owned, Contractor-Operated (GOCO); and Contractor-Owned, Contractor-Operated (COCO). Additionally, Department of Defense (DoD) Directive 5160.65, *Single manager for conventional ammunition*, defines the family of conventional munitions to include small arms, mortar, ship gun ammunition, general purpose bombs, cluster bombs, unguided rockets, land mines, and grenades. Specifically excluded are items such as guided rockets, depth charges, naval mines, chaff dispensers, and torpedoes (Department of Defense Directive 5160.65, 2008).

As shown in the Table, the reliance on the private sector—in this case both the GOCO and COCO facilities—is not just in the number of facilities operated, but also in funding where 95 percent of the production dollars are allocated to these contractor-operated facilities (Blose, 2002).

**TABLE 1. PRODUCTION FACILITY BUSINESS MODEL AND DOWNSIZING OVER TIME**

| Type of Production Facility           | Abbreviation | Number of Facilities |      |      | Production Funding |
|---------------------------------------|--------------|----------------------|------|------|--------------------|
|                                       |              | 1978                 | 1991 | 2005 | 2005               |
| Government-Owned, Government-Operated | GOGO         | 6                    | 3    | 3    | 5%                 |
| Government-Owned, Contractor-Operated | GOCO         | 28                   | 10   | 6    | 30%                |
| Contractor-Owned, Contractor Operated | COCO         | 278                  | 163  | 69   | 65%                |

(Goure', 2004, p. 2)

Recently, the Deputy Secretary of Defense reinforced this vision by declaring that “to the maximum extent feasible, [the Army will] transition government-owned ammunition production assets to the private sector” (Department of Defense, 2008, pp. 5–6). The 2004 Munitions Industrial Base strategic plan published by the Army clearly reinforces this notion of maximizing private sector involvement by stating the following vision: “A responsive, innovative, effective, and efficient manufacturing and logistics base, capable of meeting national security requirements while preserving critical core competencies and relying to the maximum practical extent on competition and private ownership” (Izzo & Radin, 2004, p. A-2).

As stated previously, this private sector dominant business model has not been capable of being responsive, innovative, effective, or efficient. The following discussion lays out the underlying economic theory on why this is a fundamentally flawed business model.

**PRIVATE SECTOR BEHAVIOR IN A DECLINING INDUSTRY**

The munitions industrial base fits the classic definition of a *declining industry* in that revenue has decreased by almost 80 percent, and more than 70 percent of the industry has disappeared from 1985 through 2001 (Taggart, 1995). Having said that, revenues have temporarily increased due to the Global War on Terror, but this increase is only temporary. Using Taggart’s framework that explains the four options for how firms behave in declining industries (Taggart, 1995), and given that this is a declining industry subject to national policy that blocks migration of this capability overseas, the military’s almost total reliance

on the private sector, as set forth in the ensuing analysis, is highly inappropriate.

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### LEADERSHIP

In an attempt to exploit monopoly pricing power and garner above average profitability, firms may, and often do aim to be one of the few remaining entities after the inevitable consolidation. This outcome is not advantageous to the government in that it would overpay for munitions because the firms involved would exploit their near-monopoly positions. In effect, the government becomes hostage to the few remaining industry participants. In 2006, almost 25 percent of critical munitions components had monopoly suppliers (Goure', 2004).

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### NICHE

Using this strategy, private firms cherry-pick and compete for the few profitable production lines. This is sub-optimal because only 76 of the 171 critical munitions are procured during peacetime (Blose, 2002). Firms would optimize their investments for peacetime production needs, and the ability to cross-subsidize the warm-basing of wartime production lines would not be possible. At the beginning of the current war, small caliber munitions production almost failed to meet needed training and theater requirements (U.S. House of Representatives, 2008, p. 5).

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### HARVEST

In this case, firms practice *controlled disinvestment* by not investing in capital equipment and facility repairs. This is exactly what happened at all of the GOCO facilities where the industry partners retained their profitability by allowing the government's capital equipment to deteriorate. Today, we have a \$1.5 billion modernization backlog, (Zimmerman, 2005). While the government is currently in the midst of a multi-year recapitalization effort at these six GOCO plants, we can expect that this cycle of deterioration will occur again unless the business model changes. ATK, which operates the Radford and Lake City facilities, states that "even a modest investment is a difficult decision for private industry" (U.S. Congress, 2004, p. 9). The perfect example of this is the Army's 25-year contract with ATK to run the Lake City Ammunition Facility. The firm clearly states in its financial report to the Securities and Exchange Commission that if the production contract is not renewed, it would be relieved of its 25-year facility contract (United States Securities and Exchange Commission, 2007). Under this scenario, what kind of steward of our investments can we expect private industry to be?

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### QUICK DISINVESTMENT

When all else fails firms abandon the industry. In the munitions sector, over

70 percent of the firms have exited, and this has led to over 300 single points of failure in the munitions supply chain (Zimmerman, 2005). This both enables monopolistic behavior and induces a tremendous amount of supply chain risk into meeting wartime requirements.

As this framework depicts, there is simply no feasible or rational behavior by the private sector participants that will result in outcomes desired by the government. Clearly, another business model is needed.

## **A DIFFERENT BUSINESS MODEL**

Without a new business model, the munitions industry will remain one of the *skid row* or *senile* sectors of the national security industrial base (Hillman, 1977). The munitions industry must be transformed and protected in two significant ways: a) it must clearly place effectiveness in meeting national security and surge requirements as paramount; and b) it must decrease private sector involvement from 95 percent of production to somewhere around 50 percent. The following recommendations are provided:

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### **A NEW VISION**

The new vision must reflect an emphasis on effectiveness and on a balanced capability between industry and government. The following is proposed: An effective manufacturing and logistics munitions industrial base capable of meeting national security and surge requirements by optimizing across the entire life cycle management of conventional munitions, preserving critical core competencies and intellectual property, focusing on efficient and innovative processes, and relying on a balanced partnership between government and industry.

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### **CONVERT THE SIX GOCO FACILITIES TO GOGO FACILITIES**

This is the most controversial and important recommendation and will result in an immediate rebalancing that will put the government in control of 35 percent of production capability. This is similar to the business model the government employs for the manufacturing portion of the depot-level repair capabilities that mandates a 50 percent split between the government and industry. A byproduct of this split will be that the government will get more control of the intellectual property associated with the processes involved.

Converting the six contractor-operated facilities to government-operated facilities has many advantages. First, since the government is not concerned with making a profit, it would become easier to optimize production capabilities for wartime requirements instead of peacetime demands. Next, when the government operates facilities, we tend to modernize them as a cost of doing business through the working capital funds. Currently, when private industry operates the government facilities, they choose to disinvest in government-owned

capital in order to maintain their profit margins. Finally, government control of these six facilities would more quickly end the long term *death-spiral* of this hybrid model of government-owned, contractor-operated munition facilities, which have gone from 28 to 6 over the past 30 years.

Some might argue for the opposite, saying that instead of making the six facilities government-operated, that the government should convert them to contractor-owned facilities and completely privatize them. While this fits the current mantra and vision of more private sector involvement, it ignores economic realities. The private sector does not operate well in unprofitable, capital-intensive markets. In fact, as Taggart's model predicts, we would expect the private sector to continue to consolidate production, focus on peacetime demand, and pass the wartime production risk back to the government. Although an army can fight a war without many capabilities, munitions remain—for now and into the foreseeable future—a *must-have* on the battlefield. For that reason, a balanced approach, where the government owns and operates about 35 percent of this critical national security industry, is recommended; this can be accomplished by converting the six GOCO facilities to GOGO facilities.

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### **TRUE INDUSTRY PARTNERSHIPS AT THE GOVERNMENT FACILITIES**

Today, the relationship is one of mutual dependency rather than a true partnership. The government and private sector each have unique capabilities. For example, we have learned from the transformation of the depot repair facilities that the government is much better at managing the facilities, equipment, and the workforce, while the private sector is much better at managing certain engineering and supply chain functions. Red River Army Depot, McAlester Army Ammunition Plant, and Naval Supply Systems Command in Jacksonville, Florida, are the best examples of how these partnerships should be structured.

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### **DEVELOP REDUNDANT CAPABILITIES AND PROHIBIT NICHE MARKETS**

The Office of the Secretary of Defense must mandate that munitions procurement by individual Services cannot bypass the organic base for what appears to be a cheaper price in the private sector. The government-controlled organic base will need to cross-subsidize inactive production lines and maintain redundant capabilities to reduce the supply chain risk associated with single points of failure.

## **IMPEDIMENTS TO CHANGE**

Despite decades of decline, we have retained the same faulty business model, and these impediments to change remain firmly entrenched. First, the acquisition culture and processes are biased towards outsourcing, so the acceptance of a proposal to, in effect *in-source* work, will be a difficult task. Next, those private firms that remain will use their lobbying strength to protect their

monopolies and niche markets. Finally, the up-front costs required to correct the *sins of the past* in the areas of intellectual property, human resources, and equipment capitalization will need to be funded, but can be minimized if we partner correctly with the affected firms. Without strong leadership, saving the conventional munitions industrial base simply may not be possible until a catastrophic failure occurs.

## CONCLUSION

The munitions industrial base today is a declining industry for which 25 percent of the critical components are produced by monopoly suppliers, 56 percent of the end items have no peacetime demand, capital assets have been allowed to deteriorate accumulating a \$1.5 billion modernization backlog, and 70 percent of the firms have exited leaving over 300 critical single points of failure. Taggart's economic framework makes the case that the rational behavior of the private sector participants (leadership, niche, harvest, and quick disinvestment) renders the current business model ineffective. There is simply no way to balance peacetime efficiency and wartime effectiveness by maximizing private sector involvement for this industry. To protect the gains made in rejuvenating this industry as a result of the current war effort and to prevent the inevitable cycle of decline that will continue, a new vision must be created that emphasizes the primacy of wartime effectiveness and a balance between government and private sector capabilities. So while the conversion of capabilities from the private sector to the government goes against decades of government policies and is the antithesis of economic theory, it must be done. The munitions sector is one of the few unique national security-related industry segments for which more government control is needed.

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### Author Biography



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## ENDNOTES

1. The family of conventional munitions includes small caliber, grenades, propellant charges, pyrotechnics, mortar, artillery, tank, rocket, scatterable mines, Navy gun, and bombs.
2. For this article, we use the term *single point of failure* to define any point in the conventional munitions production process for which a single piece of equipment that, if it fails, can bring the entire production operation for a single product to a halt. Single points of failure have occurred because production quantities are so few for many items, that maintaining a second source of production is expensive. This, however, prioritizes cost efficiency over military effectiveness.
3. These reports go back to the DoD's Bottom Up Review in 1993 and include other reports from CSIS Security Research and Intelligence, Rand, the Lexington Institute, Government Accountability Office, Industrial Committee of Ammunition Producers, Industrial College of the Armed Forces industry reports, and many internal Army audits. They are near unanimous in their assessment of the problems within the industrial base. For purposes of this article, their assessments of the current problems are taken as a state of fact. For readers who desire to read more about problems within the industrial base, the preceding reference list provides a starting point, specifically, the Lexington Industry Report.
4. A declining industry can be defined as one in which "growth is either negative or is not growing at the broader rate of economic growth." This definition is from <http://www.investopedia.com/terms/d/decliningindustry.asp>.
5. This relationship was discussed in a conversation with Dr. Steven Randolph of the Industrial College of the Armed Forces. The discussion centered on other "skid row" sectors like national security industries that also have limited commercial applications such as space and shipbuilding. This comment is also a main point in the CSIS report by Dan Goure' from 1993 on *Avoiding strategic hollowness within the DoD munitions industrial base*.
6. For purposes of this article, both GOCO and COCO operations are considered private sector operations. For the GOCO plants, while the government owns the land, facilities, and much of the equipment, the operation is run by private sector companies such as General Dynamics, BAE, and Alliant Techsystems (ATK).

